

## Per Cent Available Soil Moisture Criterion for Declaration of Drought:Case Studies in Selected Field Crops in *Alfisols* of Karnataka

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Drought of different magnitude are becoming a common phenomenon, which affects adversely on Indian agriculture. The long term field experiments (2011-2016) were conducted in finger millet, pigeonpea and groundnut to study the relationship of per cent available soil moisture (PASM) on seed yield. Levels of the PASM were classified as severe, moderate and no drought based on the yield performance of the each crops. Optimum yield of finger millet, pigeon pea and ground nut were 3000, 1950 and 958 kg/ha, respectively under no drought. Finger millet is a drought resistance staple food crop in Karnataka, India and reduced yield of 50 % (1500 kg/ha) was obtained under moderate level of 58 PASM, whereas at 40 PASM, only 25 % of optimum yield was obtained. In pigeonpea, the crop yield recorded at severe drought (25 PASM) was only 202-347 kg/ha which was 8 to 18 % of the optimum yield. The PASM values recorded at different stages of groundnut indicated that moderate drought class gave 41 % of optimum yield during pegging stage of the crop. More than 70 % PASM is considered as optimum for groundnut crop. From the overall study, the following PASM values may be followed as in impact criterion for declaring drought after the mandatory criteria of rainfall/SPI (Standardized Precipitation Index) deficiencies are triggered on.

Finger millet : 20-40 PASM as severe , 40-60 PASM as Moderate, >60 PASM as no drought

Pigeonpea : 25-30 PASM as severe , 30-60 PASM as Moderate, >60 PASM as no drought

Groundnut: 35-50 PASM as severe, 50-70 PASM as Moderate, >70 PASM as no drought

**Key words:** Drought, Finger millet, Groundnut, PASM, Pigeonpea